

## PATENT COOPERATION TREATY

PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference IP-18852-PCT	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/KR2003/000786</b>	International filing date (day/month/year) <b>17 APRIL 2003 (17.04.2003)</b>	Priority date (day/month/year) 19 APRIL 2002 (19.04.2002)
International Patent Classification (IPC) or national classification and IPC <b>IPC7 C23C 16/455</b>		
Applicant <b>IPS LTD. et al</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I  Basis of the report
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand  <b>23 APRIL 2003 (23.04.2003)</b>	Date of completion of this report  <b>31 MAY 2004 (31.05.2004)</b>
Name and mailing address of the IPEA/KR   Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea  Facsimile No. 82-42-472-7140	Authorized officer  <b>CHO, Ji Hun</b>  Telephone No. 82-42-481-5528

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

P/KR2003/000786

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

 the international application as originally filed the description:pages 1-18, as originally filedpages NONEpages NONE, filed with the demand the claims:pages 19-23, as originally filedpages NONE, as amended (together with any statement) under Article 19pages NONE, filed with the demandpages NONE, filed with the letter of \_\_\_\_\_ the drawings:pages 1-4, as originally filedpages NONE, filed with the demandpages NONE, filed with the letter of \_\_\_\_\_ the sequence listing part of the description:pages NONE, as originally filedpages NONE, filed with the demandpages NONE, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is

 the language of a translation furnished for the purposes of international search (under Rule 23.1(b)). the language of publication of the international application (under Rule 48.3(b)). the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

 contained in the international application in written form. filed together with the international application in computer readable form. furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer readable form The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4.  The amendments have resulted in the cancellation of: the description, pages NONE the claims, Nos. NONE the drawings, sheet NONE

## 5.

 This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

P/KR2003/000786

**v. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	1-13	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	1-13	YES
	Claims	NONE	NO
Industrial applicability (IA)	Claims	1-13	YES
	Claims	NONE	NO

**2. Citations and explanations (Rule 70.7)****1. Reference is made to the following documents**

- D1: JP2-122825 (DENKIKAGAKUKOGYOKK) 10 March 1990 (1990-3-10)  
 D2: JP11-001773 (TOKYO ELECTRON LTD) 6 January 1773 (173-1-6)  
 D3: US5,567,243 (SONY CORP, MATERIAL RESEARCH CORP) 22 October 1996 (1996-10-22)  
 D4: JP4-293775 (FUJITSU LTD) 19 October 1992 (1992-10-19)  
 D5: JP4-136165 (SHIMADZU CORP) 11 MAY 1992 (1992-5-11)

2. The present application relates to an atomic film deposition (ALD) apparatus and ALD method for depositing a thin film on a wafer such as a semiconductor substrate using remote plasma. The present invention is industrially applicable in deposition of atomic film.

3. D1 to D5 refer to atomic film deposition (ALD) apparatus. Among the components of the present invention, *reaction chamber*, *reactive gas supply unit*, *reactive gas transfer line*, and *bypass line* can be found in the referred documents. But, none of them discloses the combination of *first bypass line* and *second bypass line* that connect the first reactive gas supply and the reactive gas and radical supply unit to exhaust line, respectively.

They are thus not considered to be of a particular relevance in respect to the present application.

4. The presently claimed subject-matter is thus believed to be noble and to involve an inventive step when compared with the prior art as cited in the international Search Report (article 33(2) and (3) PCT).